80

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,787	06/19/2001	Albert P. Gerheim	USAVID/101/US	4341

7590 01/26/2005

USA VIDEO INTERACTIVE CORPORATION
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EXAMINER	
POLTORAK, PIOTR	
ART UNIT	PAPER NUMBER
2134	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,787	GERHEIM ET AL.	
	Examiner	Art Unit	
	Peter Poltorak	2134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1- 23 have been examined.

Drawings

2. The drawings are objected to because of drawing inconsistencies.
3. The object 18 in the specification *(pg. 13 last §)* is introduced as "the video delivery ID". However, object 18 is labeled: "Streaming Instance ID" in Fig. 1. Furthermore the specification talks about object 12 "the original video stream". Fig. 1 contains "Original video" not labeled with the number and "digital content" labeled as object 12. Also, number "2" in Fig. 1 and 2 are drawn inconsistently; sometimes resembling "λ" or handwritten "a", and other times as an incomplete digit "0" or a mirrored number "6".
4. Object 40 in the specification *(pg. 16 second §)* is introduced as "suspect video". However, object 40 is labeled: "Suspect Digital Content" in Fig. 2. Fig. 2 also contains "Original video" and it is not clear to which of the objects "suspect video" in the specification refers.
5. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the

several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 2 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
7. As per claim 2 the specification provides no guidance in teaching how a unique key is derived from the authorized video signal. The specification discloses that "the invention in a preferred form is a method and apparatus for digitally fingerprinting authorized video signals" and that "the fingerprint is

generated by ... using the 64-bit private key" but no guidance on how the key is retrieved from the signal is offered.

8. Claim 23 further recites the limitation "adding the signals to a portion of the authorized video signal using components of a rotating complex exponential". The specification does not detail what components of a rotating complex exponential are and how these components are used to add the signals to the video.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.
10. "The random number generator" in claim 2 lacks antecedent basis. "The random number generator is treated as "the cryptographically secure random number generator" recited in claim 1.
11. Claims 1 and 21 recite: "producing signals ... selected by a crypto graphically secure random number generator". The "crypto graphically secure" is not understood. It is not clear whether the statement refers to ability to access the random generator *(e.g. the generator is protected using crypto)*, whether "secure" refers to the operation of the generator *(e.g. employs cryptography while generating a random number)* or whether it refers to something else.

12. Claim 23 recites the limitation: "whereby the signals identify the original source of the authorized video signal and thereby enable criminal prosecution of parties responsible for unauthorized duplication of the video signal".
The claim's language addresses legal aspects of the intended use of the invention. Legal matters are subject to change and should not be listed as a part of the invention. Furthermore, the claim refers to "signals identifying the original source" but the specification does not clearly provide information on what exactly constitutes this limitation. It is not clear what constitutes the identifier that could be used to identify the original source.
Also, deriving a unique key from the authorized video signal is not understood. It is not clear whether the authorized video signal contains a unique key, whether the signal is simply used in the key creation process or whether the limitation refers to a key which is assigned only to a particular authorized video signal.
13. Similarly the phrase: "controlling the random number generator with the key" in claims 2 and 23 is not clear. For further examination purposes the statement is treated as a key that is used while using the random number generator.
14. The phrase: "for keying spatial frequencies on and off" in claim 4 is not understood.
15. The phrase: "signals are added by perceptually significant chroma data" in claim 5 is not understood. According to the specification "a watermark (signals) is inserted into perceptually significant components of the data" and

as a result "signals are added by perceptually significant chroma data" is treated as "signals are added into perceptually significant chroma data.

16. The phrases: "signals are added by chroma data" and "preserving the chroma data" in claim 6 are not clear. For purpose of further examination purposes the prhases are as "adding signals to chroma data" and "extracting the chroma data".

17. The limitation: "accumulating recovered signals from frame to frame" in claims 10,12 and 16 is not understood. It is unclear whether the limitation implies that each frame of the video signal contains a fingerprint signal or whether any two frames including fingerprint signal satisfies the limitation as long as recovered signals are recovered from at least two frames. For purposes of further examination the examiner considers that accumulating recovered signals from at least two frames satisfies the limitations of claims 10 and 12.

18. Claims 3, 7-9, 11, 13-15, 17-20 and 22 are rejected by virtue of their dependence.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 1-2, 4-5 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Cox et al. (U.S. Patent No. 6208735)* in view of *Rabin et al. (U.S. Patent No. 6697948)* and in further view of *Kita et al. (U.S. Patent No. 6707927)*.

20. As per claims 1 and 21 *Cox et al. (6208735) teach* producing signals with spatial frequencies *(Fig. 7, col. 14 lines7-10)*; and adding the signals to a portion of the authorized video signal *(col. 9 lines 43-48)*. Using components of a rotating complex exponential *(numbers)* is inherent; digital data consists of binary numbers.

Cox et al. do not explicitly teach selecting signals by a cryptographically secure random number generator.

Rabin et al. teach selecting signals by a cryptographically secure random number generator identifying the original source of the authorized video signal *(col. 30 lines 25-68, hash function)*. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to select signals by a cryptographically secure random number generator identifying the original source of the authorized video signal as taught by *Rabin et al.* One of ordinary skill in the art would have been motivated to perform such a modification in order to enable owners or vendors or distributors to protect their intellectual property and other rights *(col. 2 lines 46-54)*.

Cox et al. also do not explicitly teach the signals identifying the original source of the video signal and thereby enable criminal prosecution of parties responsible for unauthorized duplication of the video signal and do not

explicitly teach adding the signals to the chroma data or the intensity data of the video signal.

Kita et al. teach the signals identifying the original source of the video signal and thereby enable criminal prosecution of parties responsible for unauthorized duplication of the video signal *(col. 5 lines 55-59)*. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to add signals identifying the original source of the video signal and thereby enable criminal prosecution of parties responsible for unauthorized duplication of the video signal as taught by *Kita et al.* One of ordinary skill in the art would have been motivated to perform such a modification in order to protect copyright of digital contents *(Kita et al., col. 1 lines 19-28)*.

Kita et al.'s invention adds the signals to the chroma data or the intensity data *(Kita et al., col. 5 lines 25-30 and 48-50)*.

21. The limitation of claim 22 is implicit.

22. As per claim 4 (as best understood) *Rabin et al.* teach hash function *(Rabin et al., col. 30 lines 25-68)* and derived information are 0's and 1's: they are inherently binary keying the information they operate on (including spatial frequencies) "on" and "off".

23. Claim 23 is substantially equivalent to claims 1 and 21; therefore claim 23 is similarly rejected.

24. The limitation of claim 2 is implicit since *Rabin et al.* teach hash function *(Rabin et al., col. 30 lines 25-68)*. .

25. As per claim 5 *Cox et al.* teach the characteristics of watermark/fingerprint: "the watermark/fingerprint should *(Cox et al., col.1 lines 55-63)* be difficult and virtually impossible to remove from the material without rendering the material useless for its intended purpose" and it is implicit that the signals should be added by perceptually significant chroma data. Furthermore *Cox et al.* suggests that the watermark/fingerprint should be perceptually invisible or its presence should not interfere with the material being protected" *(Cox et al., col.1 lines 52-54)* and it is implicit that the signals should be added at low intensity.

26. *Cox et al.* teach the limitation of claim 6 in col. 8 lines 20-25.

27. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Cox et al. (U.S. Patent No. 6208735)* in view of *Rabin et al. (U.S. Patent No. 6697948)* and in view of *Kita et al. (U.S. Patent No. 6707927)* and in further view of *Hind et al. (U.S. Pub No. 20030212893).*

28. *Cox et al.* in view of *Rabin et al.* and *Kita et al.* teach producing signals with spatial frequencies selected by a cryptographically secure random number generator with a key that is unique to the video signal to be watermarked *(hash function, Rabin et al., col. 30 lines 25-68). Cox et al.* in view of *Rabin et al.* and *Kita et al.* do not teach the step of inputting a time code representative of the elapsed time of the video signal into the random number generator. *Hind et al.* teach the step of inputting a time code representative of the elapsed time of the video signal into the random number generator *(Hind et al. [28]).* It would have been obvious to one of ordinary skill in the art at the

time of applicant's invention to include the step of inputting a time code representative of the elapsed time of the video signal into the random number generator as taught by *Hind et al.* into *Cox et al.* in view of *Rabin et al.* and *Kita et al.* One of ordinary skill in the art would have been motivated to perform such a modification in order to identify each of the distinct data stream in the video stream.

29. Claims 6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Cox et al. (U.S. Patent No. 6208735)* in view of *Rabin et al. (U.S. Patent No. 6697948)* and in view of *Kita et al. (U.S. Patent No. 6707927)* and in further view of *Schreiner et al. (U.S. Patent No. 3825673).*

30. As per claim 6 *Cox et al.* in view of *Rabin et al.* and *Kita et al.* teach adding the signals to the video signal as discussed above. *Cox et al.* in view of *Rabin et al.* and *Kita et al.* do not teach the step of preserving the chroma data by common compression algorithms.

Schreiner et al. teach preserving the chroma data by common compression algorithms *(Schreiner et al., col. 1 lines 1-6).* It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to add the step of preserving the chroma data by common compression algorithms as taught by *Schreiner et al.* One of ordinary skill in the art would have been motivated to perform such a modification in order to minimize hue errors caused by phase distortion *(Schreiner et al., col. 1 lines 1-6).*

31. The limitations of claims 7-9 are implicit.

32. As per claims 11, 15 and 19 *Cox et al.* teach that the copied image may not remain in digital form *(Cox et al., col. 8 lines 65-67)*.

33. As per claims 10, 12 and 16 it is implicit to embed a fingerprint signal into more than one frame. A fingerprint signal placed in only one frame could be easily removed by the frame removal. Also, increasing the number of frames with embedded fingerprint signal minimize the chances to discover and remove of all the fingerprint signals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Poltorak whose telephone number is (571)272-3840. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 4:00 p.m. and alternate Fridays from 9:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse can be reached on (571) 272-3838. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Signature

1/21/05

Date

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